

# *An Introduction to the* **HyperTransport™ Technology Consortium**

**Chris Neuts**

**Chairman, Marketing  
Working Group**

# Consortium Goals

- **Manage and evolve the HyperTransport I/O Link specification**
- **Promote HyperTransport technology as a royalty-free industry standard**
- **Establish methods to ensure compatibility and interoperability of HyperTransport-enabled devices**
- **Drive the creation of a HyperTransport technology infrastructure**
  - **Tools**
  - **Testers**
  - **Licensable Cores**
- **Facilitate the licensing of HyperTransport technology and associated patents**



# Background

- **AMD has been developing HyperTransport I/O Link with key technology partners since 1997**
  - API Networks and Sun Microsystems are major development partners
- **Technology formally announced: 14-FEB-2001**
  - Sun, Cisco, Broadcom, HP, ALi, and NVidia provide endorsements
- **Consortium Launched: 23-July-2001**
  - 8 founding Promoter members: AMD, API Networks, Apple Computer, Cisco Systems, Nvidia, PMC-Sierra, Sun Microsystems, and Transmeta
  - Web site launched ([www.hypertransport.org](http://www.hypertransport.org))
  - First public event: Platform Conference on 24-July
- **SGI and Broadcom have joined as Promoters**
  - Currently 10 companies serving on Executive Committee



# 3 Levels of Membership

- **Promoters**
  - Manage the business of the HyperTransport Consortium
  - Each Promoter has one voting seat on the Executive Committee
- **Contributors**
  - Manage the evolution of HyperTransport technology
  - Entitled to participate in Marketing events
  - Entitled to review preliminary and pre-released documents
  - May hold voting seats on Working Groups
  - May participate on Task Forces
- **Adopters**
  - Receive royalty-free license to HyperTransport I/O Link intellectual property
  - No voting rights
  - May participate on Task Forces w/ Executive Committee approval



*"An Introduction to the HyperTransport™ Technology Consortium"*

# Executive Committee

- **Acts as the Board of Directors for the HyperTransport Technology Consortium**
  - **a non-profit corporation**
- **Elects consortium officers**
- **Forms and staffs Working Groups**
- **Allocates and oversees consortium budget**
- **Authorizes the release of updated specifications**
- **Reviews and authorizes the activities of the Working Groups**
  - **May override Working Group resolutions with a 2/3 vote**



# Consortium Officers

- **President: Gabriele Sartori**
  - Elected by Executive Committee
  - Responsibilities are defined in the Bylaws
- **Secretary/Treasurer: Donna Becker**
  - maintains financial and membership records
  - keeps minutes of Executive Committee meetings
  - manages all official consortium correspondence
- **Webmaster: Matthew Chrispen**
  - manages [www.hypertransport.org](http://www.hypertransport.org)



# HyperTransport Consortium Members

TERADYNE



*Flow Engines*

TRANSMETA

FAST-CHIP  
INCORPORATED

AMCC  
APPLIED MICRO CIRCUITS CORPORATION

NOKIA  
CONNECTING PEOPLE



AMD



"An Introduction to the HyperTransport™ Technology Consortium"

# Benefits of Adopter Membership

- **Royalty-free license to HyperTransport technology**
- **Right to use HyperTransport trademark and logo**
- **Access to partners, suppliers, and customers**
- **Your company listed on [www.hypertransport.org](http://www.hypertransport.org)**
- **Distribution of product literature and marketing collateral at HyperTransport Consortium events**





# Benefits of Contributor Membership

- **Contributors have all rights of Adopter members**
- **In addition, Contributors may:**
  - **petition for a voting seat on a Working Group**
    - Working Groups are the decision-making bodies of the consortium
    - Working Groups may create subordinate Task Forces
    - Proposals from Task Forces are approved or rejected by a vote of the Working Group members
  - **review all preliminary documents and proposals**
    - draft documents will be available to all Contributors upon request
    - any Contributor may provide feedback to Working Group / Task Force



# Benefits of Contributor Membership

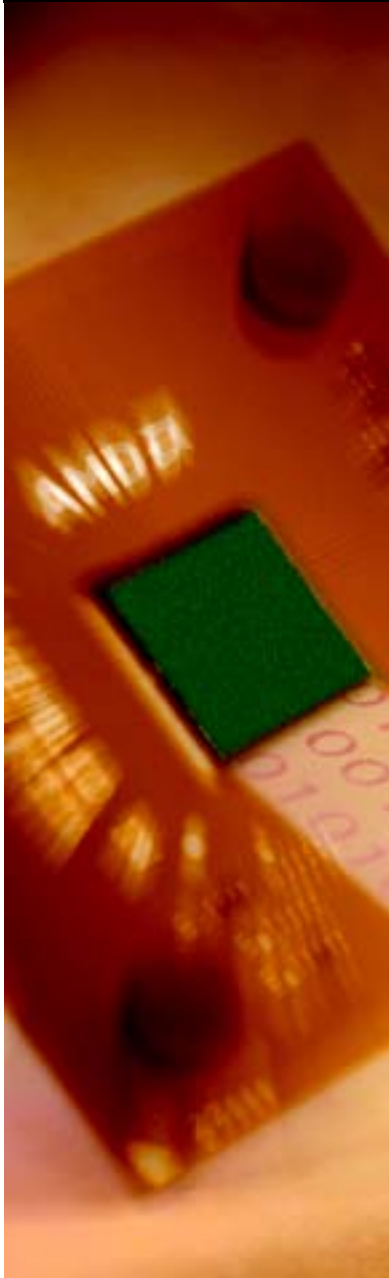
- **Contributors may also:**
  - **serve as a Task Force chair**
    - Contributors will have significant influence in Task Forces
  - **participate in Consortium events**
    - Contributors may have corporate logos displayed at events
    - Contributors may have marketing collateral distributed at events
    - Contributors may request speaking opportunities at events
  - **request Promoter status**
    - Contributors may petition Executive Committee to create new seat
    - Contributors may petition the membership to fill a vacant seat



# Initial Working Groups

- **Technical Working Group**
  - Protocol Task Force
  - Electricals Task Force
  - Networking Task Force
  - Infrastructure Task Force
  - Power Management Task Force
  - Editorial Task Force
- **Marketing Working Group**
  - Events Task Force
  - Promotions and Public Relations Task Force
  - Business Task Force





# Technical Working Group

**Chairman: Paul Whittemore**  
**Sun Microsystems**

# Protocol Task Force

- **Chairperson: Paul Miranda, AMD**
- **Protocol Task Force initiatives may include:**
  - **defining error management algorithms for HyperTransport**
    - Proposal from Sun Microsystems being reviewed now
  - **increasing address space from 40-bits to 64-bits**
  - **enhancing HyperTransport security**
  - **improving capability for handling isochronous data streams**



# Electrical Task Force

- **Chairperson: Gerry Talbot, API Networks**
- **Electrical Task Force initiatives may include:**
  - **promoting migration of HyperTransport physical interfaces into common industry processes and standard cell libraries**
  - **adapting the HyperTransport specifications to evolving manufacturing technologies**
  - **developing specification for HyperTransport links over fiber**
  - **defining a HyperTransport connector for server backplanes, other applications**
  - **investigating rack-to-rack cabling solutions**
  - **developing faster PHYs to create higher speed links**



# Networking Task Force

- **Chairperson: Bryan Chin, PMC-Sierra**
- **Will represent the HyperTransport Consortium to work with Telecom/Networking trade associations**
  - **Infiniband**
  - **RapidIO**
  - **Network Processing Forum**
- **Network Task Force initiatives may include:**
  - **Developing a messaging layer on top of the existing HyperTransport protocol for networking specific applications**
  - **Reorganizing the HyperTransport specifications to mirror the traditional OSI networking model**



# Infrastructure Task Force

- **Chairperson: Todd Hironaka, Cisco Systems**
- **Infrastructure Task Force programs may include:**
  - **Promoting the creation of HyperTransport™ tools for design, debug, and verification**
  - **Driving the availability of RTL cores and PHYs**
  - **Promoting the development of HyperTransport™ diagnostics and compatibility tests**
  - **Promoting software solutions for HyperTransport™ devices**
    - power mgmt, system mgmt, security, error recovery
  - **Forming a HyperTransport™ standard compliance program**

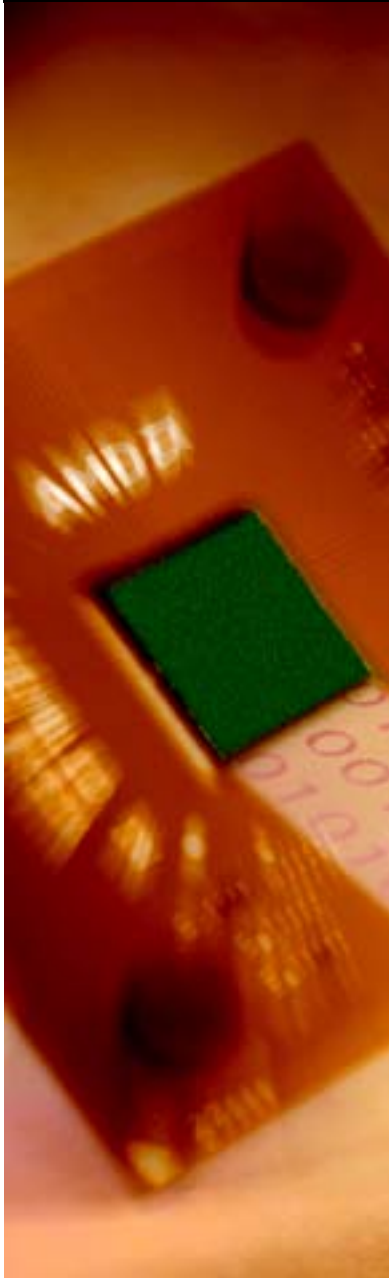




# Power Management Task Force

- **Chairperson: Brian Howard, Apple Computer**
- **Create and evolve power management specifications**
- **Define docking, hot-plug, and hot-swap requirements**
- **Promote “down-scaling” feature set**
  - **very low cost implementations**
  - **“narrow” and small form factor implementations**
  - **set very low voltage requirements**





# Marketing Working Group

**Chairperson: Chris Neuts**  
**AMD**

# Events Task Force

- **Chairperson: Jenny Keily, AMD**
- **Plans HyperTransport Consortium Events**
  - **General Sessions**
  - **Developers Conferences**
  - **Interoperability Forums**
  - **International Road Show / Seminars**
- **Coordinates Participation in Industry Events**
  - **Comdex**
  - **Networld / Interop**
  - **WinHEC**
  - **CeBit**
  - **Computex**



*"An Introduction to the HyperTransport™ Technology Consortium"*

# Promotions and PR Task Force

- **Chairperson: Maureen Monterosso, PMC-Sierra**
- **Responsible for web site content**
- **Issues press releases on behalf of Consortium**
- **Coordinate analyst briefings**
- **Manages quotes and endorsements**
  - **Responsible for all “messaging”**
- **Maintains marketing collateral for Consortium**
  - **whitepapers**
  - **competitive analysis**
- **Manages contract with external PR firm**



*"An Introduction to the HyperTransport™ Technology Consortium"*

# Business Task Force

- **Chairperson: Donna Becker, AMD**
- **Oversees and proposes Consortium budget**
- **Handles licensing and intellectual property issues**
- **Negotiates contracts on behalf of Consortium**
- **Investigates disputes between members**
  - **may arbitrate resolution or recommend Executive Committee action**



# Membership Benefits

Membership Benefit	Promoter	Contributor	Adopter
Dues level	\$40,000	\$25,000	\$5,000
Serve on Executive Committee	Yes	No	No
Nominate new Promoters	Yes	No	No
Working Group Chairperson	Yes	Yes	No
Participation at trade events	Yes	Yes	No*
Review preliminary documents	Yes	Yes	No
Participation in Working Groups	Yes	Yes	No
Participation in Task Forces	Yes	Yes	No*
Participation in General Sessions	Yes	Yes	Yes
Access to members site	Yes	Yes	Yes
Free access to the specs	Yes	Yes	Yes
Inclusion in member email lists	Yes	Yes	Yes
Rights to use Consortium logo	Yes	Yes	Yes

**\* Unless authorized by the Executive Committee**

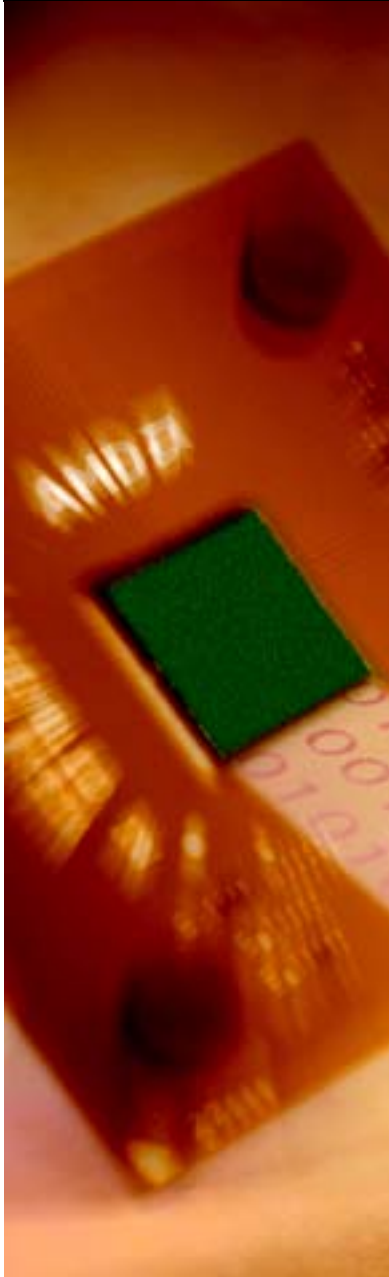


*"An Introduction to the HyperTransport™ Technology Consortium"*

# How can you join ?

- **Request a copy of the HyperTransport Consortium membership agreement**
  - apply online at [www.hypertransport.org](http://www.hypertransport.org)
  - select Contributor or Adopter membership level
  - membership agreement will be mailed
- **Fill out the membership application**
  - include contact information, logo, etc.
- **Returned the signed membership agreement**
  - membership granted upon receipt
- **Provide purchase order # for membership dues**
  - payment is due within 30 days of invoice or membership may be suspended





**Q & A**